

THE UNIT IN BOTANY.

A Report of a Meeting of the Committee of the North Central Association of Colleges and Secondary Schools upon the Definition of the Unit in Botany for the North Central Association of Colleges and Secondary Schools.

The committee consists of the following members:

- O. W. Caldwell (Chairman), Associate Professor of Botany, University of Chicago, Chicago, Illinois.
F. C. Newcombe, Professor of Botany, University of Michigan, Ann Arbor, Michigan.
L. Murbach, Head of the Department of Biology, Central High School, Detroit, Michigan.
C. R. Barnes, Professor of Plant Physiology, University of Chicago, Chicago, Illinois.
R. A. Harper, Professor of Botany, University of Wisconsin, Madison, Wisconsin.
M. F. Arey, Professor of Natural Science, Iowa State Normal School, Cedar Falls, Iowa.
C. E. Bessey, Professor of Botany, University of Nebraska, Lincoln, Nebraska.
E. A. Boostrom, Superintendent of Schools, Osceola, Nebraska.
Eloise Butler, Teacher of Botany, South Side High School, Minneapolis, Minnesota.
Francis Ramaley, Professor of Biology, University of Colorado, Boulder, Colorado.
Ellsworth Bethel, Teacher of Botany, East Side High School, Denver, Colorado.
Grace J. Baird, Teacher of Botany, High School, Urbana, Illinois.
Etta M. Bardwell, Teacher of Botany, High School, Cedar Rapids, Iowa.
J. F. Garber, Teacher of Botany, Yeatman High School, St. Louis, Missouri.
A. F. Ewers, Teacher of Botany, High School, Davenport, Iowa.
Wm. P. Holt, Teacher of Botany, High School, Toledo, Ohio.
Russeau McClellan, Head of Department of Biology, Shortridge High School, Indianapolis, Indiana.
Ellen T. Sullivan, Teacher of Botany, High School, Appleton, Wisconsin.
Royden E. Webster, Teacher of Botany, High School, Iron Mountain, Michigan.
Worralló W. Whitney, Teacher of Botany, South Chicago High School, Chicago, Illinois.
Benjamin M. Davis, Professor Agricultural Education, Miami University, Oxford, Ohio.
Elma Chandler, Teacher of Botany, Soldan High School, St. Louis, Missouri.

The committee met in the Botany Building of the University of Chicago on June 26th, 1909. The following members were present:

Caldwell (chairman), Barnes, Newcombe, Whitney, Garber, Holt, Miss Baird, Miss McClellan, Miss Chandler, Miss Sullivan, Ewers, Webster, Davis, Miss Leavitt of Minneapolis representing Miss Butler.

The following additional members, who were not in attendance had sent written statements of their views in response to letters sent out by the chairman:

Murbach, Bardwell, Harper, Arey, Bessey.

Dr. Caldwell, the chairman of the committee, briefly outlined (1) the purpose of the meeting which is to reconsider the statement of the unit, and (2) called attention to previous reports of the committee, and (3) to the reason for enlargement of the committee, which is to secure more adequate representation of teachers actually engaged in teaching botany in high schools.

Dr. Barnes was called upon by the chairman to speak upon the "Purposes of the Course in Botany." Dr. Barnes stated that the main purposes of the course are primarily (1) to develop the scientific attitude of mind and a judicial temperament, to think straight and clearly, and (2) to widen the student's horizon or to increase his fund of information; or (briefly summarized) (1) training, (2) information. That it is comparatively simple to state the purposes of the course but difficult to know how to accomplish these ends.

To begin with things in which *all* students are interested, Dr. Barnes declared would be difficult since there are many students and many interests. While this mode of starting the course might apply to an ideal case of one teacher to *each* pupil, it would not apply to the average school. Some general plan must therefore be pursued in the presentation of the work regardless of the initial interests of the students.

After brief discussion of the above it was moved by Dr. Newcombe, that the ideas of (1) training, (2) information, or "the broadening of the student's horizon," be accepted by the committee to represent their views as to the purpose of the botany course. Carried unanimously.

Dr. Caldwell raised the question of the desirability of introducing into the botany course such subjects and materials from applied botany as would have a special bearing upon agriculture and other industries. Botany needs plenty of meaningful illustrative material, which would be of appreciable value to the student and of the highest scientific value.

The chairman read letters from Dr. Harper of the University of Wisconsin, and others in which was emphasized the undesirability of substituting a hodge-podge of elementary agriculture in place of a substantial general course in botany.

Whether the matter of plant breeding should be introduced *experimentally* was questioned by Dr. Newcombe. It was generally conceded, however, that a limited reading knowledge of the subject is desirable.

The general trend of the discussion, in which several participated, in regard to introducing more subjects and illustrative material from agriculture, forestry, horticulture, etc., was that less stress should be placed on morphology and taxonomy in the course, and that a better use be made of local materials, and that the various economic phases

of botany be more carefully considered, thus bringing the student more closely and intelligently in touch with his environment.

Mr. Whitney called attention to the danger of overcrowding the course by grafting on the new and still retaining the old. While he accepted as highly desirable certain of the proposed changes to make better use of local material, and of emphasizing certain economic phases of the work, he foresaw a danger in adding new work to the course *without* a corresponding elimination of an equal amount of less desirable work that is included in the botany course at present.

It was moved and carried that a committee be appointed to outline the principal content of a year's course in high school botany.

Before the close of the morning session it was moved, seconded, and carried that a subcommittee, of which Dr. Caldwell should be the chairman, be appointed to prepare and present to the afternoon session a tentative plan for a new statement of the unit. The other members of the subcommittee appointed were W. W. Whitney, B. M. Davis, and W. P. Holt. Adjournment was taken until 2 o'clock P. M.

Afternoon Session.

The subcommittee appointed to prepare a tentative plan for a year's work in botany, presented a partial report on the content of the year's work. In the discussion that followed it was moved by Dr. Barnes that the definition of the unit in botany be made in rather general terms, and be accompanied by a statement as to the qualifications for teachers who should be approved by the North Central Association. Carried.

It was further recommended that there be prepared, to accompany the more general statement of the unit, a list of subjects and exercises that might reasonably make up the content of a year's course. This was not, however, to be in the nature of a requirement, but was intended to serve as a helpful guide to teachers who might desire a statement as to what should be included in a year's course that would be entitled to the unit of credit.

It was moved and unanimously carried that work should be outlined for a year's credit only. No provision was made for the recognition of less than a year's work in botany.

Dr. Barnes moved that the equivalent of 180 periods of 45 minutes each, in the clear, be the time requirement for the class room; and that double laboratory periods count as one recitation period. Carried. It was further moved by Dr. Newcombe that there be recommended three double laboratory periods a week, at least two being prescribed. Carried.

Recommendation was made that the high school botany be not given before the second year of the high school course. Carried.

As to the general content of the course the following recommendations were made by motions which were carried:

That Plant Physiology should be one of the large subjects included; that the relations of plants to man be emphasized throughout the course; that Plant Ecology, including field work, should be a part of the course. That the study of the great groups of plants, including the

"lower forms" as well as the seed plants, together with some of the leading families of seed plants, be included in the course.

Motion was made that Dr. Caldwell be requested to complete, with such assistance as he may desire to secure, a rather detailed statement of the subjects and exercises that would be desirable in a year's course in high school botany. Carried.

In an informal discussion on the qualifications of the teacher, in which everyone present was called upon to express opinions, it was suggested that the well-equipped high school teacher in botany should have as a minimum the following preparation—at least two years of botanical study including the Morphology of the lower and higher plant forms, Plant Physiology, Ecology, including a thorough knowledge of the flora in the region where taught, Plant Diseases, and a general course in Bacteriology. Some work in Zoölogy and Physiography was further recommended as desirable. While these preparatory studies for the teacher were deemed highly desirable, it was recognized that only a very small part of the present force of teachers in secondary schools could qualify on this standard.

It was moved by Mr. Whitney that the chairman appoint a special committee to serve with the chairman in summing up and elaborating the suggestions made in this meeting. Carried. The members added to the committee were W. W. Whitney, B. M. Davis, and W. P. Holt.

A list of special topics, prepared by Mr. Whitney and Mr. Holt, as desirable subjects to be introduced into the botany course, were referred to the committee just appointed.

Moved and carried that the secretary be instructed to send to each member of the committee a general statement of the expense in connection with the work of this committee and that each member of the general committee pay \$1.00 toward carrying on the work. Carried.

OTIS W. CALDWELL, Chairman.

WM. P. HOLT, Secretary.

THE REPORT OF THE JOINT MEETING OF THE PHYSICS CLUB OF NEW YORK, AND EASTERN ASSOCIA- TION OF PHYSICS TEACHERS.

This meeting was held in Hartford, Conn., on Saturday, April 24th. The meeting was called to order by the President, N. Henry Black of the Eastern Association, and the Secretary's report of the last meeting was accepted. Mr. Clement C. Hyde of the Hartford High School, who has had considerable experience in the manufacture of apparatus from second hand material, said something about his work and announced that the laboratories containing this apparatus were open for inspection. Mr. Chas. R. Hérrick, Chairman of the Committee on Magazine Literature, presented his report. Mr. Roger C. Chittenden, Chairman of the Committee on Current Events, presented a very interesting and helpful report. Mr. J. W. Hutchins, Chairman of the Committee to investigate the teaching of Physics in small high schools,